



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,933	03/08/2005	Yoichi Kobayashi	2005-0312A	7570

513 7590 10/12/2006

WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

ELEY, TIMOTHY V

ART UNIT PAPER NUMBER

3724

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/526,933

Applicant(s)

KOBAYASHI ET AL.

Examiner

Timothy V. Eley

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/8/05</u> | 6) <input type="checkbox"/> Other: ____  |

Art Unit: 3724

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 30,31,36-55, and 59-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- Throughout claims 30,31,36-55, and 59-62, applicant refers to weight function(s). However, it does not appear from the specification that anything is ever actually weighted. Applicant mentions that a particular weight function is large at a certain wavelength, but never uses any units of weight. Therefore, it is not readily apparent as to exactly what is meant by "weight" function, and how the weight function(s) is used in the invention.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 3724

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 35 is vague, indefinite, and awkwardly and confusingly worded since applicant previously recited the polishing table in claim 26 as being part of the monitoring apparatus.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 26-29, 32, 34, 35, 56, and 57 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamane et al (2002/0115380).

- Yamane et al discloses a polishing state monitoring apparatus comprising: a light source (32); a light-emitting unit (28) disposed in a polishing table (14) having a polishing surface (16), for applying light from the light source to a surface, being polished, of a workpiece; a light-receiving unit (28) disposed in the polishing table, for receiving reflected light from said surface of the workpiece; a spectroscopy unit (34) for dividing the reflected light received by the light-receiving unit into a

Art Unit: 3724

plurality of light rays having respective wavelengths; light-receiving elements for detecting the light rays divided by said spectroscopy unit, and accumulating the detected light rays as electrical information; a spectral data generator for reading the electrical information accumulated by the light-receiving elements and generating spectral data of the reflected light; a control unit for controlling the light-receiving elements to perform a sampling process at a predetermined timing in synchronism with rotation of the polishing table; and a processor for calculating a predetermined characteristic value on the surface of the workpiece based on the spectral data generated by the spectral data generator. See figure 1, and paragraphs 0012, 0041, 0045, 0051, 0056, 0081, 0083, and 0100.

- Regarding claim 27, the control unit is capable of controlling the timing of the sampling process performed by the light-receiving elements so that a sampling point is located on a line interconnecting the center of the polishing table and the center of the workpiece.
- Regarding claim 28, the light-emitting unit and the light-receiving unit are capable of pass across the center of the workpiece.
- Regarding claim 29, the control unit is capable of adjusting the sampling period of the sampling process performed by the light-receiving elements based on a rotational speed of the polishing table.

Art Unit: 3724

- Regarding claim 32, the light source inherently emits light having a wavelength band.
- Regarding claim 34, the light source comprises a continuous light source which is continuously turned on at least while the light-receiving elements are detecting the reflected light from the surface of the workpiece.
- Regarding claim 35, see top ring 18, and light transmission unit 26.
- Regarding claim 57, the control unit is capable of controlling energization of the light source based on a rotation angle from a line which interconnects the center of the polishing table and the center of the workpiece. See paragraph 0100.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 27, 33, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamane et al.

- Yamane et al is explained above.
- Yamane et al does not disclose that the light source comprises a pulsed light source, nor that a sensor is mounted on the outer

Art Unit: 3724

circumferential edge of the polishing table for detecting a rotation angle of the polishing table.

- It would have been obvious to one having ordinary skill in the art at the time the invention was made that a pulsed light source is capable of being used to monitor the workpiece, since applicant has not disclosed that a pulsed light source provides any stated advantage over the prior art, and it appears that applicant's apparatus would function equally as well with a continuous light source as used by Yamane et al.
- Yamane et al states in paragraph 0100 that the light intensity of the wafer is measured at every rotation of the polishing pad 16, and therefore, inherently there must be some type of sensor that indicates each rotation of the polishing pad. Therefore, the exact type of sensor used to measure the rotation of the polishing pad would have been obvious to one having ordinary skill in the art at the time the invention was made.

#### **Conclusion**

9. Claims 30,31,36-55, and 59-62 are vague and indefinite and are not fully understood, and therefore have not been further treated on the merits.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

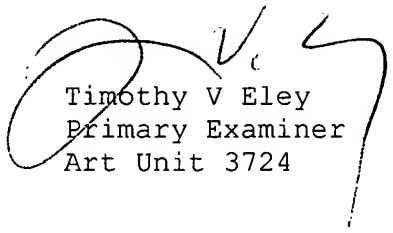
- The cited prior art discloses apparatuses for monitoring workpieces with light sources.

Art Unit: 3724

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V. Eley whose telephone number is 571-272-4506. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Timothy V Eley  
Primary Examiner  
Art Unit 3724

tve